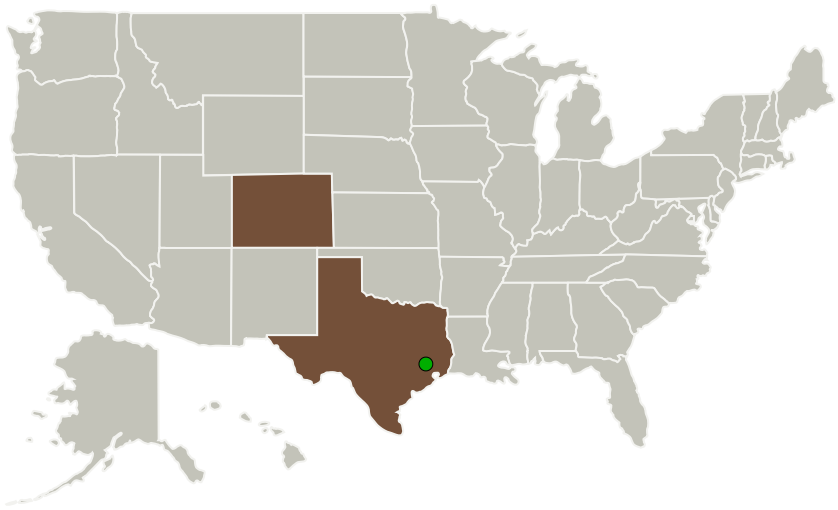
On-Orbit DNA, RNA, and Protein Extraction, Phase I

Completed Technology Project (2012 - 2012)

Project Introduction

Genova Engineering proposes to develop and demonstrate a toolset of discrete devices and extraction kits which will leverage existing on-orbit facilities and will permit an expansion of molecular biology capabilities onboard ISS. This toolset, Nucleic Acid And Protein Isolation (NAAPI), is a near-term deployable technology which gives the ISS researcher the ability to isolate DNA, RNA and proteins from precious biological samples. By isolating these target molecules, sample volumes can be reduced by orders of magnitude resulting in reduced downmass. This technology also proposes to adapt a state of the art stabilization technique to enable long-term ambient storage of nucleic acids. This system offers the unique ability to isolate total protein for storage and/or analysis.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Genova Engineering, LLC.	Lead Organization	Industry	Wheat Ridge, Colorado
Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

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Primary U.S. Work Locations	
Colorado	Texas

Project Transitions

March 2012: Project Start

August 2012: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138385)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Genova Engineering, LLC.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Jon Genova

Co-Investigator:

Jon Genova

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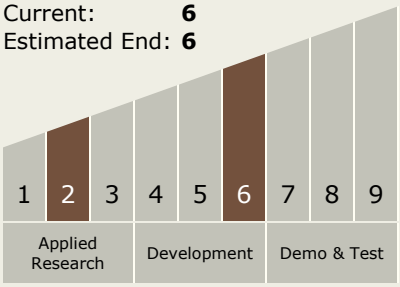
Technology Maturity (TRL)

Start: **2**
Current: **6**
Estimated End: **6**



Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.3 Human Health and Performance
    - TX06.3.1 Medical Diagnosis and Prognosis

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System